

CLAIMS

WHAT IS CLAIMED IS:

1. A rechargeable battery, comprising:

a prismatic cell case having short lateral walls and long  
5 lateral walls; and

a group of electrodes accommodated inside the cell case,  
the group of electrodes including a plurality of positive and  
negative electrode plates arranged alternately and  
substantially in parallel to the long lateral walls of the cell  
10 case with an intervening separator therebetween;

wherein lateral edges of the positive electrode plates  
protrude beyond the negative electrode plates on one side, and  
lateral edges of the negative electrode plates protrude beyond  
the group of positive electrode plates on the opposite side,  
15 the protruding portions forming lead portions.

2. The rechargeable battery of Claim 1, further  
comprising collector plates, wherein the lateral edges of  
respective lead portions of the positive electrode plates and  
the negative electrode plates are attached to the collector  
20 plates, whereby the group of electrodes is held by the  
collector plates.

3. The rechargeable battery of Claim 2, wherein the  
collector plates are provided with curved portions at both ends  
thereof for clamping the group of electrodes.

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4. The rechargeable battery of Claim 2, wherein:  
a plurality of cell cases are coupled together as one  
piece with the short lateral walls of the cell cases being  
mutually integrated, thereby constituting an integral battery  
case;

upper open ends of the cell cases are closed by an  
integral lid member; and

the collector plates in adjacent cell cases are connected  
to each other via a connection fitting that extends through the  
short lateral walls between the adjacent cell cases.

5. The rechargeable battery of Claim 3, wherein the  
collector plates are connected at an upper edge thereof to  
another group of electrodes or to an outer terminal.

6. The rechargeable battery of Claim 4, wherein  
through holes are formed in the short lateral walls  
between two adjacent cell cases; and

the connection fitting comprises a pair of frame fittings,  
each frame fitting having a base end and a protruding portion  
that is inserted into the through holes, the distal ends of the  
protruding portions being welded together, and the collector  
plates being attached to the base ends of the frame fittings.

7. The rechargeable battery of Claim 1, wherein  $D < L \leq 4D$ , where L is the length of a side of the positive and  
negative electrode plates where the lead portions are provided,

and D is the length of a side of the positive and negative electrode plates in a direction perpendicular thereto.

7. The rechargeable battery of Claim 1, wherein  $d < l \leq 4d$ , where l is the length of the long lateral walls of the cell case in the direction parallel to the lead portions of the positive and negative electrode plates, and d is the length of the short lateral walls of the cell case in the direction perpendicular thereto.

8. The rechargeable battery of Claim 1, wherein the separator is of a belt-like shape and meanders alternately between the positive electrode plates and the negative electrode plates.

10. A battery module constituted by coupling a plurality of rechargeable batteries together, each of the rechargeable batteries accommodating therein a group of electrodes comprising a group of positive electrode plates and a group of negative electrode plates and a liquid electrolyte, wherein:

a plurality of prismatic cell cases having short lateral walls and long lateral walls are arranged side by side, with adjacent short lateral walls being integral with each other, and upper open ends of the plurality of prismatic cell cases being integrally closed with a single lid member;

the group of electrodes inside a cell case including a positive electrode collector plate and a negative electrode

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collector plate arranged at lateral opposite ends of each of the group of positive electrode plates and the group of negative electrode plates respectively;

through holes are formed in the short lateral walls of the cell cases at upper edge portions thereof;

a pair of frame fittings comprising base ends and protruding portions are provided for each of the cell cases for connecting two adjacent cell cases, the protruding portions of the pair of frame fittings being inserted into the through holes formed in the upper edge portions of the short lateral walls of the cell cases from both sides and welded together, and the positive and negative electrode collector plates in the cell cases being respectively attached to the base ends of the frame fittings;

end frame fittings having base ends and protruding portions are provided for cell cases located at both outer ends of the rechargeable battery for connecting the cell cases at both outer ends of the rechargeable battery to outside terminals; and

connection terminals having protruding portions are connected to the end frame fittings of the cell cases at both outer ends of the rechargeable battery.

11. The battery module of Claim 10, further comprising a sealing material that is provided around the protruding

portions of the frame fittings and the connection terminals, so  
as to provide a seal between the two adjacent cell cases.



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